

AMENDMENT TO THE CLAIMS

A detailed listing of the status of all claims that have been in the application is provided below.

1. (Currently Amended) A tire for motor vehicles bearing heavy loads comprising:

(a) a carcass ply based on metal cords and an elastomeric carcass layer coating said cords,

(b) an inner elastomeric layer which defines the radially inner face of said tire, thereby circumscribing the inner space of the tire, and which protects the carcass ply from diffusion of air coming from the inner space of the tire, and

(c) an intermediate reinforcement layer located between said carcass ply and said inner layer, said intermediate reinforcement layer being formed from a composition comprising:

(i) a natural or synthetic polyisoprene having a majority of chains with cis-1,4 bonds and a solution copolymer of one or more conjugated diene monomers and one or more vinyl aromatic monomers, wherein said copolymer is a solution SBR copolymer in an amount that is at least 50 phr and said solution SBR copolymer simultaneously satisfying satisfies the following relationships:

(1) $D \geq 60 - 1.75 \cdot VA$

(2) $D \leq 116 - 1.64 \cdot VA$

(3) $D > 10$

(4) $VA > 10$,

wherein D is the amount of diene chains having a 1, 2 bond content (in %) and VA is the amount of vinyl aromatic chains (in %), and

(ii) carbon black, in an amount of 25 to 85 parts by weight per hundred parts of said elastomer (phr),

wherein said carbon black has values of DBP oil absorption (in ml/ 100 g) and of BET specific surface area (in m²/g) which fulfil the following relationship:

$$\text{DBP} \leq -0.88. \text{BET} + 190.$$

2. (Currently Amended) The tire according to Claim 1, wherein the composition comprises

(a) polyisoprene having a greater than 80% cis-1,4 bond content, wherein ~~said solution SBR copolymer the conjugated diene monomers are selected from the group consisting of butadiene, isoprene and mixtures thereof and the vinyl aromatic monomers are selected from the group consisting of styrene, a methylstyrene and mixtures thereof,~~

~~said copolymer satisfying~~ satisfies the following relationships:

$$(i) D \geq 66 - 1.58. VA$$

$$(ii) D \leq 124 - 1.71. VA$$

$$(iii) D > 10$$

$$(iv) VA > 10,$$

wherein D is the amount of diene chains having a 1, 2 content (in %) and VA is the amount of vinyl aromatic chains (in %), and

(b) carbon black having values of DBP oil absorption (in ml/100 g) and of BET specific surface area (in m²/g) that fulfil the following relationship:

$$\text{DBP} \leq -0.88. \text{BET} + 185.$$

3. (Original) The tire according to Claim 1 or 2, wherein the composition comprises a white reinforcing filler in an amount of less than 50 phr, said filler comprising silica and/or alumina, having surface SiOH and/or AlOH functions, respectively.

4. (Original) The tire according to Claim 3, wherein the white reinforcing filler has a BET specific surface area of between 30 m²/g and 240 m²/g.

5. (Original) The tire according to Claim 1 or 2, wherein the composition comprises a modified carbon black having surface SiOH and/or AlOH functions, in an amount of less than 50 phr.

6. (Original) The tire according to Claim 1 or 2 wherein the composition comprises a paraphenylene diamine antioxidant in an amount of 1 to 5 phr.

7. (Original) The tire according to Claim 1 or 2 wherein the composition comprises a metal salt selected from the group consisting of organic salts and hydroxides of cobalt, nickel and iron, in an amount of 0.03 to 3 phr.

8. (Original) The tire according to Claim 1 or 2 wherein the composition comprises stearic acid in an amount of less than 2 phr.

9. (Original) The tire according to Claim 1 or 2 wherein the composition comprises zinc oxide in an amount of more than 2 phr.

10. (Original) The tire according to Claim 1 or 2 wherein the composition comprises sulphur in an amount of 1 to 6 phr.

11. (Original) The tire according to Claim 1 or 2, wherein the intermediate elastomeric reinforcement layer has a thickness of 1 to 4 mm.

12. (Previously presented) The tire according to Claim 1 or 2, wherein the composition further comprises kaolin.

13. (Cancelled)

14. (Currently Amended) A method for manufacturing a tire for motor vehicles bearing heavy loads comprising:

(a) a carcass ply based on metal cords and an elastomeric carcass layer coating said cords,

(b) an inner elastomeric layer which defines a radially inner face of said tire, thereby circumscribing an inner space of the tire, and which protects the carcass ply from diffusion of air coming from the inner space of the tire, and

(c) an intermediate reinforcement layer located between said carcass ply and said inner layer, wherein said intermediate layer is formed from a composition which is obtained by a process comprising the steps of:

(i) preparing in solution a copolymer of one or more conjugated diene monomers and one or more vinyl aromatic monomers, wherein said copolymer is a solution SBR copolymer in an amount that is at least 50 phr and said solution SBR copolymer simultaneously satisfying satisfies the following relationships:

(1) $D \geq 60 - 1.75 \cdot VA$

(2) $D \leq 116 - 1.64 \cdot VA$

(3) $D > 10$

(4) $VA > 10$,

wherein D is the amount of diene chains having a 1,2 bond content (in %)

and VA is the amount of vinyl aromatic chains (in %),

(ii) blending the copolymer obtained in step (i) with a natural or synthetic polyisoprene having a majority of chains with cis-1,4 bonds to obtain an elastomeric blend,

(iii) effecting a thermomechanical working of the elastomeric blend obtained in (ii) with the other constituents of said composition including carbon black in an amount of 25 to 85 parts by weight per hundred parts of said elastomeric blend (phr), said carbon black having values of DBP oil absorption (in ml/100 g) and of BET specific surface area (in m²/g) which fulfil the following relationship:

$$\text{DBP} \leq -0.88 \cdot \text{BET} + 190.$$

15. (Previously Presented) The tire according to claim 1, wherein said polyisoprene has a cis-1, 4 content greater than 80%.

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Currently Amended) The tire according to claim [[20]] 1, wherein the amount of SBR copolymer is in the range from about 50 to about 80 phr.